

June 2000

CURRICULUM VITAE

NAME: John Hunter

ORGANIZATION: National Oceanic & Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center
P.O. Box 271
La Jolla, California 92038
(858) 546-7000

PRESENT POSITION: Director, Coastal Fisheries Resources Division

EDUCATION:

B.A., Zoology, University of California, Santa Barbara, 1956

M.S., Zoology, University of Wisconsin, 1958

Ph.D., Zoology, University of Wisconsin, 1962

EXPERIENCE:

1988 - Present	Director, Coastal Fisheries Resources Div. National Marine Fisheries Service La Jolla, CA
1975 - 1988	Supervisory Fishery Biologist (Research) National Marine Fisheries Service La Jolla, CA
1962 - 1975	Fishery Biologist (Research) National Marine Fisheries Service La Jolla, CA
1973 - Present	Adjunct Professor Scripps Institution of Oceanography University of California, San Diego La Jolla, CA

RESEARCH INTERESTS:

Life history of young stages of marine fishes, fish reproduction, and the use of lidar in fish surveys.

HONORS AND AWARDS:

U.S. Department of Commerce Gold Medal for Fishery Research, 1980

Scholar in Residence, Rockefeller Foundation Bellagio Study and Conference Center, Italy, 1981

Best Publication of Year Award in Fishery Bulletin, U.S., 1980, 1981

National Coalition for Marine Conservation, outstanding contributions to the research and enhancement of marine fish populations, 1986

President, American Institute of Fishery Research Biologists, September 1986-September 1988

San Diego Oceans Foundation, Dr. Roger Revelle Perpetual Award, 1990

U.S. Department of Commerce Bronze Medal for Fishery Research, 1996

PROFESSIONAL AFFILIATIONS:

American Institute of Fishery Biologists

American Fisheries Society

SERVICE ON SCIENTIFIC COMMITTEES:

Technician Advisory Team Member, AID Mariculture Programs in Taiwan and Philippines, 1985-1989

Invited Lecturer, American Fisheries Society Symposium on Larval Ecology, 1986

Invited Lecturer and Participant in Long Term Research Needs for Chesapeake Bay Living Resources Workshop, University of Maryland, 1987

Site Team Member, University of California, May 1987

Invited Lecturer, for course on Egg Production Method, December 5-13) and for workshop (December 14-16), Alfred-Wegener Institute for Polar and Marine Research, Bremerhaven, Germany, December 1988

Chairman and Editor of Symposium Volume, AIFRB/AFS Symposium on Scientific Writing, 1988-1989, "Writing for Fishery Journals," 1990

Chairman and Editor of Symposium Volume, Symposium on the California Halibut, *Paralichthys californicus*, 1989-1990

Chairman and Editor of Symposium Volume, "Ichthyoplankton Methods for Estimating Fish Biomass." Symposium for annual meeting of the Early Life History Section of the American Fisheries Society, 1990-1992

Member of the California Sea Grant Committee, August 1990-1993

Co-Chair on NSF workshop for West Coast GLOBEC field program, 1991-1992

NOAA Coastal Ocean Program, Coastal Fisheries Ecosystem, Technical Advisory Committee, 1991-1993

Member of National Steering Committee for U.S. GLOBEC, January 1991-December 1993

Member of Fishery Science Committee, PICES (North Pacific Marine Science Organization), 1991-1999

Co-Chair, GLOBEC West Coast Science Plan, 1992-1993

Invited Lecturer & Participant, SCOPE (Scientific Committee on Problems of the Environment)
 Workshop on "Environmental Effects of Ozone Depletion on Biota," Budapest, 1992
 Expert Advisor for NOAA, Montrose Chemical Case, 1992
 Co-Chair, PICES Working Group 3 on Coastal Pelagic Fishes, 1993-1994
 Member, Southwest Regional Marine Research Board, 1993-1994
 Co-Chair, Workshop on Airborne Remote Sensing, Boulder, CO, March, 1994
 Co-Chair, GLOBEC International Research Program on Small Pelagic Fishes & Climate Change,
 1994-present
 Co-Chair, GLOBEC International Implementation Workshops on Small Pelagic Fishes & Climate
 Change, La Paz, Mexico, June 1994; Namibia, December 1995; and La Paz, Mexico,
 August 1996
 Chairman, AID & NOAA GLOBEC-SPACC scientific exchange program between the U.S.A.
 and South Africa, 1995-1996
 Co-Chair, CalCOFI Conference Symposium on Pacific sardine, October 1995
 Panel Member, California Sea Grant, Marine Ecological Reserves Research Program, 1996-1997
 Co-Chair, CalCOFI Conference Symposium on the ecology and fisheries of hake, October 1996
 Member of the California Sea Grant Committee, August 1998-present
 Panel Member, Scientific Advisory Panel to BENEFIT, Benguela Environment Fisheries Interaction
 Training program, 1998-present

TITLE OF PH.D. DISSERTATION:

The utilization of the nests of *Lepomis cyanellus* by
Notropis umbratilis

ACADEMIC SUPERVISION:

Doctoral students.	1
Post Doctoral students (NRC).	1
TOTAL	2

STUDENTS GRADUATED: (Committee Chairman, UCSD)

Master of Science.	4
Ph.D.	8
TOTAL	12

TOTAL RESEARCH PUBLICATIONS: 80

PUBLICATIONS - JOHN R. HUNTER

June 2000

1. Hunter, John R. and Warren J. Wisby. 1961. Utilization of the nests of green sunfish (*Lepomis cyanellus*) by the redbfin shiner (*Notropis umbratilis cyanocephalus*). *Copeia* 1961 (1):113-115.
2. Hunter, John R. 1963. The reproductive behavior of the green sunfish (*Lepomis cyanellus*). *Zoologica* 48(1):13-24.
3. Hester, F.J., J.R. Hunter and R.R. Whitney. 1963. Jumping and spinning behavior in the spinner porpoise. *Journal of Mammalogy* 44(4):586-588.
4. Hunter, John R. and Warren J. Wisby. 1964. Net avoidance behavior of carp and other species of fish. *Journal of the Fisheries Research Board of Canada* 21(3):613-633.
5. Hunter, John R. and Arthur D. Hasler. 1965. Spawning association of the redbfin shiner, *Notropis umbratilis*, and the green sunfish, *Lepomis cyanellus*. *Copeia* 1965 (3):265-281.
6. Hunter, John R. 1966. Procedure for analysis of schooling behavior. *Journal of the Fisheries Research Board of Canada* 23(4):547-562.
7. Hunter, John R. and Charles T. Mitchell. 1966. Live coloration of a juvenile *Uraspis secunda* (Poey) from the eastern tropical Pacific. *California Fish and Game* 52(1):57-58.
8. Hunter, John R., Donald C. Aasted and Charles T. Mitchell. 1966. Design and use of a miniature purse seine. *Progressive Fish-Culturist*, 28(3):175-179.
9. Hunter, John R. 1967. Color changes of pelagic prejuvenile goatfish, *Pseudupeneus grandisquamis*, after confinement in a shipboard aquarium. *Copeia* 1967(4):850-852.
10. Hunter, John R. and Charles T. Mitchell. 1967. Association of fishes with flotsam in the offshore waters of Central America. U.S. Fish and Wildlife Service, Fishery Bulletin 66(1):13-29.
11. Hunter, John R. 1968. Effects of light on schooling and feeding of jack mackerel, (*Trachurus symmetricus*). *Journal of the Fisheries Research Board of Canada* 25(2):393-407.
12. Hunter, John R. 1968. Fishes beneath flotsam. *Sea Frontiers* 14(5):280-288.
13. Hunter, John R. and Charles T. Mitchell. 1968. Field experiments on the attraction of pelagic fish to floating objects. *Journal du Conseil* 31(3):427-434.
14. Hunter, John R. 1969. Communication of velocity changes in jack mackerel (*Trachurus symmetricus*) schools. *Animal Behavior* 17(3):507-514.

15. Mitchell, Charles T. and John R. Hunter. 1970. Fishes associated with drifting kelp, *Macrocystis pyrifera*, off the coast of southern California and northern Baja California. California Fish & Game 56(4):288-297.
16. Van Olst, Jon C. and John R. Hunter. 1970. Some aspects of the organization of fish schools. Journal of the Fisheries Research Board of Canada 27:1225-1238.
17. Hunter, John R. 1971. Sustained speed of jack mackerel, *Trachurus symmetricus*. Fishery Bulletin, U.S. 69(2):267-271.
18. Hunter, John R. and James R. Zweifel. 1971. Swimming speed, tail beat frequency, tail beat amplitude, and size in jack mackerel, *Trachurus symmetricus*, and other fishes. Fishery Bulletin, U.S. 69(2):253-266.
19. Pritchard, Austin W., John R. Hunter, and Reuben Lasker. 1971. The relation between exercise and biochemical changes in red and white muscle and liver in the jack mackerel, *Trachurus symmetricus*. Fishery Bulletin, U.S. 69(2):379-386.
20. Hunter, John R. 1972. Swimming and feeding behavior of larval anchovy *Engraulis mordax*. Fishery Bulletin, U.S. 70(3):821-838.
21. Perrin, William F. and John R. Hunter. 1972. Escape behavior of the Hawaiian spinner porpoise (*Stenella cf. S. longirostris*). Fishery Bulletin, U.S. 70(1):49-60.
22. Hunter, John R. 1974. Schooling in the ecology of fish, by D.V. Radakov. Transactions of the American Fisheries Society (Review) 4:834-835.
23. Hunter, J.R. and G.L. Thomas. 1974. Effect of prey distribution and density on the searching and feeding behavior of larval anchovy *Engraulis mordax* Girard. In J.H.S. Blaxter (editor), pp. 559-574, The early life history of fish. Proc. Int. Symp. Dunstaffnage Mar. Res. Lab., Scottish Mar. Biol. Assoc., Oban, Scotland, May 17-23, 1973. Springer-Verlag, Berlin, Heidelberg, New York.
24. Hunter, John R. 1976. Culture and growth of northern anchovy, *Engraulis mordax*, larvae. Fishery Bulletin, U.S. 74:81-88.
25. Hunter, John R. (editor). 1976. Report of a colloquium on larval fish mortality studies and their relation to fishery research, January 1975. NOAA Technical Report NMFS Circular-395, 5 p.
26. Hunter, John R. 1977. Behavior and survival of northern anchovy *Engraulis mordax* larvae. Calif. Coop. Oceanic Fish. Invest. Rep. 19:138-146.
27. Hunter, John R. and Carol Sanchez. 1977. Diel changes in swim bladder inflation of the larvae of

- the northern anchovy, *Engraulis mordax*. Fishery Bulletin, U.S. 74(4):847-855.
28. Hunter, John R. 1978. Marine Ecology: A comprehensive, integrated treatise on life in oceans and coastal waters. Volume III. Cultivation, Part 2 by Otto Kinne. Transactions of the American Fisheries Society (Review) 107:873-874.
 29. Hunter, John R., John H. Taylor and H. Geoffrey Moser. 1979. Effect of ultraviolet irradiation on eggs and larvae of the northern anchovy, *Engraulis mordax*, and the Pacific mackerel, *Scomber japonicus*, during the embryonic stage. Photochemistry and Photobiology 29:325-338.
 30. Hunter, John R. 1980. The feeding behavior and ecology of marine fish larvae. In J.E. Bardach, J.J. Magnuson, R.C. May and J.M. Reinhart (editors), pp. 287-330. Fish behavior and its use in the capture and culture of fishes: ICLARM Conference Proceedings 5, 512 p. International Center for Living Aquatic Resources Management, Manila, Philippines.
 31. Hunter, J. Roe and Stephen R. Goldberg. 1980. Spawning incidence and batch fecundity in northern anchovy, *Engraulis mordax*. Fishery Bulletin, U.S. 77(3):641-652.
 32. Hunter, J. Roe and Beverly J. Macewicz. 1980. Sexual maturity, batch fecundity, spawning frequency, and temporal pattern of spawning for the northern anchovy, *Engraulis mordax*, during the 1979 spawning season. Calif. Coop. Oceanic Fish. Invest. Rep. 21:139-149.
 33. Hunter, John R. and Carol A. Kimbrell. 1980. Early life history of Pacific mackerel, *Scomber japonicus*. Fishery Bulletin, U.S. 78(1):89-101.
 34. Hunter, John R. and Carol A. Kimbrell. 1980. Egg cannibalism in the northern anchovy, *Engraulis mordax*. Fishery Bulletin, U.S. 78(3):811-816.
 35. Hunter, John R. 1981. Feeding ecology and predation of marine fish larvae. In Marine fish larvae. Morphology, ecology and relation to fisheries, R. Lasker, ed. Washington Sea Grant Program, University of Washington Press, Seattle, 33-77 pp.
 36. Alvarino, Angeles and John R. Hunter. 1981. New records of *Alloposus mollis* Verrill (cephalopoda, octopoda) from the Pacific Ocean. Nautilus 95(1):26-32.
 37. Hunter, J. Roe and Roderick Leong. 1981. The spawning energetics of female northern anchovy, *Engraulis mordax*. Fishery Bulletin, U.S. 79(2):215-230.
 38. Kaupp, Sandor E. and John R. Hunter. 1981. Photorepair in larval anchovy, *Engraulis mordax*. Photochemistry and Photobiology. 33:253-256.
 39. Hunter, John R., Sandor E. Kaupp and John H. Taylor. 1981. Effects of solar and artificial ultraviolet-B radiation on larval northern anchovy, *Engraulis mordax*. Photochemistry and Photobiology 34:477-486.

40. Blaxter, J.H.S. and J.R. Hunter. 1982. The biology of the clupeoid fishes. *In* Advances in Marine Biology, Academic Press, New York, 20:1-223.
41. Hunter, John R. and Harold Dorr. 1982. Thresholds for filter feeding in northern anchovy, *Engraulis mordax*. Calif. Coop. Oceanic Fish. Invest. Rep. 23:198-204.
42. Hunter, John R. and Kathleen M. Coyne. 1982. The onset of schooling in northern anchovy larvae, *Engraulis mordax*. Calif. Coop. Oceanic Fish. Invest. Rep. 23:246-251.
43. Hunter, John R., Sandor E. Kaupp and John H. Taylor. 1982. Assessment of effects of UV radiation on marine fish larvae. *In* J. Calkins (ed.) pp. 459-497, The Role of Solar Ultraviolet Radiation in Marine Ecosystems, Plenum Press, New York.
44. Hunter, John R. 1983. On the determinants of stock abundance. *In*: W.S. Wooster (ed.), pp. 11-16. Interannual Variability of the Environment and Fisheries of the Gulf of Alaska and the Eastern Bering Sea. University of Washington Press, Seattle.
45. Bagarinao, Teodora and John R. Hunter. 1983. The visual feeding threshold and action spectrum of northern anchovy (*Engraulis mordax*) larvae. Calif. Coop. Oceanic Fish. Invest. Rep. 24:245-254.
46. Hunter, J.R. 1984. Synopsis of culture methods for marine fish larvae. *In*: Moser et al., (eds.), pp. 24-27, Ontogeny and systematics of fishes. Special Publication 1, American Society of Ichthyologists and Herpetologists.
47. Hunter, J.R. 1984. Inferences regarding predation on the early life stages of cod and other fishes. *In* E. Dahl et al., (eds.), pp. 533-562, The propagation of cod *Gadus morhua* L. Flodevigen rapportser., 1, 1984.
48. Hunter, J. Roe. 1985. Preservation of northern anchovy in formaldehyde solution. *In* R. Lasker (ed.), An egg production method for estimating biomass of pelagic fish: application to the northern anchovy (*Engraulis mordax*), p. 63-65. U.S. Dep. Commer. NOAA Tech. Rep. NMFS-36.
49. Hunter, J. Roe and Beverly J. Macewicz. 1985. Rates of atresia in the ovary of captive and wild northern anchovy, *Engraulis mordax*. Fishery Bulletin, U.S. 83(2):119-136.
50. Hunter, J. Roe and Beverly J. Macewicz. 1985. Measurement of spawning frequency in multiple spawning fishes. *In* R. Lasker (ed.), An egg production method for estimating spawning biomass of pelagic fish: Application to the northern anchovy (*Engraulis mordax*), p. 79-94. U.S. Dep. Commer. NOAA Tech. Rep. NMFS-36.
51. Hunter, John and Ragan Nicholl. 1985. Visual threshold for schooling in northern anchovy

Engraulis mordax. Fishery Bulletin, U.S. 83(3):235-242.

52. Hunter, J. Roe, Nancy C.H. Lo, and Roderick J.H. Leong. 1985. Batch fecundity in multiple spawning fishes. In R. Lasker (ed.), An egg production method for estimating spawning biomass of pelagic fish: Application to the northern anchovy (*Engraulis mordax*), p. 67-77. U.S. Dep. Commer. NOAA Tech. Rep. NMFS-36.
53. Folkvord, Arild and John R. Hunter. 1986. Size-specific vulnerability of northern anchovy, *Engraulis mordax*, larvae to predation by fishes. Fishery Bulletin, U.S. 84(4):859-869.
54. Hunter, John R., A.W. Argue, William H. Bayliff, Andrew E. Dizon, Alain Fonteneau, Daniel Goodman, and Gunter R. Seckel. 1986. The dynamics of tuna movements: An evaluation of past and future research. FAO Fish. Tech. Pap. 277, 78 p.
55. Hunter, J. Roe, Beverly J. Macewicz, and John R. Sibert. 1986. The spawning frequency of skipjack tuna, *Katsuwonus pelamis*, from the South Pacific. Fishery Bulletin, U.S. 84(4):895-903.
56. Vernet, Maria, John R. Hunter, and Russell D. Vetter. 1988. Accumulation of age pigments (lipofuscin) in two cold-water fishes. Fishery Bulletin, U.S. 86(2):401-407.
57. Hunter, J. Roe, Beverly J. Macewicz, and Carol A. Kimbrell. 1989. Fecundity and other aspects of the reproduction of sablefish, *Anoplopoma fimbria*, in central California waters. Calif. Coop. Oceanic Fish. Invest. Rep. 30:61-72.
58. Lo, Nancy C.H., John R. Hunter, and Roger P. Hewitt. 1989. Precision and bias of estimates of larval mortality. Fishery Bulletin, U.S. 87(3):399-416.
59. Owen, R.W., N.C.H. Lo, J.L. Butler, G.H. Theilacker, A. Alvarino, J.R. Hunter, and Y. Watanabe. 1989. Spawning and survival patterns of larval northern anchovy, *Engraulis mordax*, in contrasting environments—A site-intensive study. Fishery Bulletin, U.S. 87(3):673-688.
60. Hunter, John R., John L. Butler, Carol Kimbrell, and Eric A. Lynn. 1990. Bathymetric patterns in size, age, sexual maturity, water content, and caloric density of Dover sole, *Microstomus pacificus*. Calif. Coop. Oceanic Fish. Invest. Rep. 31:132-144.
61. Booman, Clelia, Arild Folkvord, and John R. Hunter. 1991. Responsiveness of starved northern anchovy *Engraulis mordax* larvae to predatory attacks by adult anchovy. Fishery Bulletin, U.S. 89(4):707-711.
62. Hunter, J. Roe, Beverly J. Macewicz, N. Chyan-huei Lo, and Carol A. Kimbrell. 1992. Fecundity, spawning, and maturity of female Dover sole *Microstomus pacificus*, with an evaluation of assumptions and precision. Fishery Bulletin, U.S. 90(1):101-128.

63. Lo, N. Chyan-huei, John R. Hunter, H. Geoffrey Moser, Paul E. Smith, and Richard D. Methot. 1992. The daily fecundity reduction method: A new procedure for estimating adult fish biomass. ICES Journal of Marine Science 49:209-215.
64. Dickerson, Terri L., Beverly J. Macewicz, and J. Roe Hunter. 1992. Spawning frequency and batch fecundity of chub mackerel, *Scomber japonicus*, during 1985. Calif. Coop. Oceanic Fish. Invest. Rep. 33:130-140.
65. Macewicz, Beverly J. and J. Roe Hunter. 1993. Spawning frequency and batch fecundity of jack mackerel, *Trachurus symmetricus*, off California during 1991. Calif. Coop. Oceanic Fish. Invest. Rep. 34:112-121.
66. Jacobson, Larry D. and John R. Hunter. 1993. Bathymetric demography and management of Dover sole. North American Journal of Fisheries Management 13(3):405-420.
67. Hunter, J.R. N.C.-H. Lo, and L.A. Fuiman, eds. 1993. Ichthyoplankton methods for estimating fish biomass, Part 2. Bull. Mar. Sci. 53(2):723-935.
68. Lo, N.C.-H, J.R. Hunter, H.G. Moser, and P.E. Smith. 1993. A daily fecundity reduction method of biomass estimation with application to Dover sole *Microstomus pacificus*. Bulletin of Marine Science 53(2):842-863.
- *69. Hunter, John R. and Tokio Wada (editors). 1993. Coastal Pelagic Fishes (Report of Working Group 3). Part 1, PICES Scientific Report No. 1, October 1993. North Pacific Marine Science Organization (PICES), Sidney, B.C., Canada, 24 p.
70. Macewicz, Beverly J., and J. Roe. Hunter. 1994. Fecundity of sablefish, *Anoplopoma fimbria*, from Oregon coastal waters. Calif. Coop. Oceanic Fish. Invest. Rep. 35:160-174.
- *71. Hunter, John R. and James H. Churnside (editors). 1995. Airborne fishery assessment technology - a NOAA workshop report. SWFSC Admin. Rep., La Jolla, LJ-95-02, 33 p.
- *72. Hunter, John R. and Juergen Alheit (editors). 1995. International GLOBEC Small Pelagic Fishes and Climate Change program. Report of the First Planning Meeting, La Paz, Mexico, June 20-24, 1994. GLOBEC Report #8, 72 p.
73. Arenas, Pablo R., John R. Hunter, and Larry D. Jacobson. 1996. The 1994 Mexico-U.S. spawning biomass survey for Pacific sardine (*Sardinops sagax*) and the 1995 CalCOFI Sardine Symposium. Calif. Coop. Oceanic Fish. Invest. Rep. 37:129-133.
74. Macewicz, Beverly J., José Julián Castro-González, Celia Eva Coterro-Altamirano, and J. Roe Hunter. 1996. Adult reproductive parameters of Pacific sardine (*Sardinops sagax*) during 1994. Calif. Coop. Oceanic Fish. Invest. Rep. 37:140-151.

75. Churnside, James H. and John R. Hunter. 1996. Laser remote sensing of epipelagic fishes. *In* Laser remote sensing of natural waters: from theory to practice, V.I. Feigels and Y.I. Kopilevich, eds. SPIE, Bellingham, Washington, pp. 38-53.
76. Lo, Nancy C.H., David Griffith, and John R. Hunter. 1997. Using a restricted adaptive cluster sampling to estimate Pacific hake larval abundance. Calif. Coop. Oceanic Fish. Invest. Rep. 38:103-113.
- *77. Hunter, John R. and Juergen Alheit (editors). 1997. International GLOBEC Small Pelagic Fishes and Climate Change program. Implementation Plan. GLOBEC Report #11, 36 p.
78. Hunter, J. Roe and Nancy C.H. Lo. 1997. The daily egg production method of biomass estimation: some problems and potential improvements. *Ozeanografika* 2:41-69.
- *79. Lo, N.C.H., J.R. Hunter, and J.H. Churnside. 1999. Modeling properties of airborne lidar surveys for epipelagic fish. SWFSC Admin. Rep., La Jolla, LJ-99-01, 48 p.
80. Lo, N.C.H., J.R. Hunter, and J.H. Churnside. 2000. Modeling statistical performance of an airborne lidar survey system for anchovy. *Fishery Bulletin*, U.S. 98:264-282.

* Nonrefereed publication